

# Evaluation of Mothers and Infants with Presumed Exposure to Zika Virus: A Look into the Lehigh Valley Experience

Tibisay Villalobos MD

Lehigh Valley Health Network, [tibisay.villalobos@lvhn.org](mailto:tibisay.villalobos@lvhn.org)

Michelle Maron RN

Lehigh Valley Health Network, [michelle.maron@lvhn.org](mailto:michelle.maron@lvhn.org)

Jeanette Taveras DO

Lehigh Valley Health Network, [Jeanette.Taveras@lvhn.org](mailto:Jeanette.Taveras@lvhn.org)

Follow this and additional works at: <http://scholarlyworks.lvhn.org/pediatrics>



Part of the [Infectious Disease Commons](#), and the [Pediatrics Commons](#)

---

## Published In/Presented At

Villalobos, T., Maron, M., Taveras, J. (2017, Oct). *Evaluation of Mothers and Infants with Presumed Exposure to Zika Virus: A Look into the Lehigh Valley Experience*. Poster presented at: IDWeek 2017, San Diego, CA.

This Poster is brought to you for free and open access by LVHN Scholarly Works. It has been accepted for inclusion in LVHN Scholarly Works by an authorized administrator. For more information, please contact [LibraryServices@lvhn.org](mailto:LibraryServices@lvhn.org).

Jeanette Taveras DO  
Tib: Villalobos MD  
Michelle Mamon

Evaluation of Mothers and Infants with Presumed Exposure to Zika Virus: A Look into the Lehigh Valley Experience

**Background:** Zika virus (ZIKV) is a flavivirus known to cause a self-limited infection with some outbreaks associated with neurological effects. Recently it has become an emerging public health threat due to the presumed correlation between in-utero ZIKV infection and rising rates of microcephaly and other neurodevelopmental abnormalities in exposed infants. Infected travelers from affected areas aid in the spread of ZIKV. This is particularly significant in the Lehigh Valley, where 47% of the city’s population of Allentown, Pennsylvania is Hispanic or Latino with frequent travel to ZIKV endemic areas.

**Methods:** A retrospective review was performed of data collected on mothers and infants with suspected ZIKV exposure between June 2016 and May 2017 at Lehigh Valley Health Network, Allentown, Pennsylvania.

**Results:** A total of 16 pregnant women with 15 completed pregnancies and 1 fetal demise were exposed in the first trimester, 4 in the second, and 5 over multiple trimesters. Six pregnant women reported symptoms, including fever, rash, arthritis, conjunctivitis, and diarrhea. Two mothers were tested during the first trimester, 5 during the second, and 6 during the third. Timing of testing did not always correlate with time of exposure. Of the 6 mothers that reported symptoms, only one was positive for ZIKV by serum PCR. Five mothers had a positive ZIKV plaque reduction neutralization test (PRNT). Pathological findings of the placental tissue for the fetal demise were consistent with ZIKV infection. One infant had equivocal ZIKV IgM antibodies and positive PRNT, with positive ZIKV IgM antibodies found in the mother. Although 2 infants had prenatal ultrasounds concerning for microcephaly, no neurological abnormalities, microcephaly or developmental delays were reported at birth or during available follow up.

**Conclusion:** No anatomic or neurological abnormalities have been noted in infants born in our region after in-utero ZIKV exposure. Timing of testing might play an important role in identifying pregnant women at risk of delivering infants with ZIKV related anomalies. Further research is needed to determine the usefulness of serology testing as an indicator of ZIKV in-utero infection.

Summary of Data from 16 Mothers with Suspected Zika Exposure	
Total Mothers with suspected Zika exposure	16
Any Laboratory evidence of possible recent Zika virus infection	8
Maternal symptoms status	
• Symptoms of Zika virus reported	6
• No symptoms of Zika virus reported	7
• Unknown	3
Timing of symptoms or exposure	
• First trimester	7
• Second trimester	4
• Third trimester	0
• Multiple Trimesters	5
Confirmed Evidence of Zika Virus Infection	5

Table1. Summary of collected data from retrospective chart review of 16 mothers with presumed Zika exposure



Figure 1: Pathology image of products of conception of mother with fetal demise showing increased numbers of macrophages/Hofbauer cells (arrows). Similar findings have been described in second trimester placentas confirmed infected with Zika virus.

\*Symptoms of mother with fetal demise were unknown. Zika PCR was performed at 12 weeks gestation (time of fetal demise was 12w1d) and was negative in both serum and urine. Zika IgM was negative.

Maternal Data							Infant Data										
Subject No	Time of exposure	Country of Exposure	Symptoms	Zika PCR			Zika IgM	Zika PRNT	Prenatal US	Birth HC Percentile	Zika PCR			Infant ZIKV IgM	HUS	Hearing Screen	Follow up HC Percentile
				Serum	Urine						Serum	Urine					
1	2nd Trimester	Dominican Republic	Fever, rash, arthralgia, diarrhea	Not Performed	Not Performed		Positive	>1280	IUGR, decreased EFW	13.19%	Not Detected	Not Detected		Equivocal (PRNT >1280)	Normal	Normal	68.01%
9	Multiple Trimesters	Venezuela	None	Not Detected	Not Detected		Negative	>1280	Normal	12.21%	Not Detected	Not Detected		Negative	Normal	Normal	50.74%
10	1st Trimester	Dominican Republic	Rash	Detected	Not Detected	Presumptive Positive/ Equivocal	>1280	>1280	EFW 17% HC <5%	12.21%	Detected	Not Detected		Negative	Normal	Normal	60.08%
11	Multiple Trimesters	Dominican Republic	None	Not Detected	Not Detected	Positive	>1280	>1280	Intracranial Cyst	70.03%	Detected	Not Detected		Negative	Normal	Normal	94.07%
12	1st Trimester	Dominican Republic	None	Not Detected	Not Performed	Equivocal	>80	>80	HC 6% at 26w2d and 10% at 37w0d	12.21%	Detected	Not Detected		Negative	Normal	Abnormal	30.06%

Table 2. Summary of demographic, clinical and serological data of Zika PRNT positive mothers and their infants.

\*Subject 10: Mother with persistent positive ZIKV PCR at 12, 18, and 25 week. Zika IgM was positive at 13 weeks and equivocal at 18 weeks. No Zika IgM testing performed at 25 weeks. Zika PRNT was performed only at 12 week.

\*Subject 11: Infant follow up prenatal US showed progressive decrease in size of intracranial cyst, with resolution on infant's head ultrasound.

\*Subject 12: Infant follow up audiology evaluation was normal.